STATE OF VERMONT PUBLIC SERVICE BOARD

Docket No. 6120	
Tariff filing of Central Vermont Public Service Corporation requesting a 12.9% rate increase, to take effect July 27, 1998)
Docket No. 6460	
Tariff filing of Central Vermont Public Service)	
Corporation requesting a 7.6% rate increase,)	
to take effect December 24, 2000)

Prefiled Testimony of

William Sherman

on Behalf of the

Vermont Department of Public Service

March 9, 2001

Summary:

Mr. Sherman's testimony describes and supports adjustments to CVPS's power costs related to the Vermont Yankee nuclear power plant. This testimony also identifies facts regarding a management decision regarding whether to implement power uprate at Vermont Yankee.

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Testimony of William Sherman

1	Q.	Please state your name and occupation.
2	A.	My name is William Sherman, and I am an engineer with the Department of Public Service
3		("The Department"). My responsibilities include oversight for the state of the activities of the nuclear
4		power industry and regional nuclear power plants which affect the state of Vermont. I also monitor
5		economic aspects of the nuclear units in which Vermont utilities have ownership shares.
6		
7	Q.	Please describe your educational background and experience.
8	A.	I have a B.S. Degree in Mechanical Engineering from The University of Michigan. I have been
9		with the Department for twelve years in the position of nuclear engineer. Prior to coming to the
10		Department I had 18 years of licensing, engineering, design and construction experience in the nuclear
11		industry. I am a registered professional engineer in three states.
12		
13	Q.	What is the purpose of your testimony?
14	A.	My testimony describes and supports adjustments to Central Vermont Public Service
15		Corporation ("CVPS") Witnesses Howland and Watts's prefiled testimony of November 9, 2000, for
16		costs associated with the Vermont Yankee nuclear plant. This testimony considers Vermont Yankee's
17		2001-2002 Operating Expense Projection dated January 18, 2001 (the "Operating Expense
18		Projection"), which has not yet been, but which is expected to be supported by a Vermont Yankee
19		Witness.
20		My testimony also identifies cost savings which would be realized but for a decision of CVPS

and Vermont Yankee Nuclear Power Corporation (VYNPC) management.

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- 1 Q. Please identify the adjusted test year or rate year for the Docket 6460 proceeding.
- 2 A. The adjusted test year or rate year for this docket (Docket 6460) is July 1, 2001 to June 30,
- 3 2002.

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SUMMARY OF TESTIMONY

- 6 Q. Would you please summarize the results of the Docket 6460 adjustments supported by this testimony?
- 8 A. Yes. The adjustments supported by this testimony are:

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Summary of Adjustments

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	VY Total	CVPS Share
Vermont Yankee power uprate adjustment	(\$9,363,000)	(\$3,277,000)
VY decommission adjustment	(\$6,211,000)	(\$1,934,000)
VY Texas Compact principal adjustment	(\$2,456,000)	(\$765,000)
VY Texas Compact interest adjustment	(\$853,500)	(\$265,000)
VY new sale transaction costs	(\$1,500,000)	(\$467,000)
Total Adjustment (Reduction)		(\$6,708,000
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POWER UPRATE DECISION

- 21 Q. Please describe your adjustment to CVPS adjusted test year related to power uprate of Vermont
- Yankee.
- 23 A. On November 19, 1998, the Vermont Yankee Board of Directors ("VY Board") considered
- a proposal for a power uprate of Vermont Yankee. This proposal is provided as Exhibit WKS-1.

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The VY Board did not decide at this meeting, and ultimately in January, 1999, the VY Board voted unanimously not to implement the proposal. Had the proposal been implemented, I calculate that CVPS's cost of service for the Docket 6460 adjusted test year would have been reduced by \$3,277,000. I believe the VY Board should have implemented the power uprate proposal, and therefore I include an adjustment in Docket 6460 to reduce CVPS cost of service by \$3,277,000.

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A.

Please describe what power uprate is.

Power uprate is a term-of-art in the nuclear industry, used to refer to gaining approval from the Nuclear Regulatory Commission (NRC) to operate at a higher power generation level than currently or originally licensed. Power uprate can be accomplished at nuclear plants because the plants were conservatively designed to run at power levels of up to 20% higher than licensed power level. Licensed power levels were limited to levels used in the accident and safety analysis calculations for the plant. As the nuclear power industry has matured, it has been realized that refined calculation methods could be used to demonstrate that correct safety margins exist for operation at higher power levels. In 1990, General Electric (GE), the reactor supplier for Boiling Water Reactors (BWR's) (and therefore Vermont Yankee), submitted licensing topical reports to the NRC to increase the rated thermal power levels of the BWR/4, BWR/5, and BWR/6 product lines by approximately 5% (Vermont Yankee is a BWR/4). The NRC subsequently approved GE's topical report, and NRC has reviewed and approved at least nine power uprate requests in this generic uprate program.

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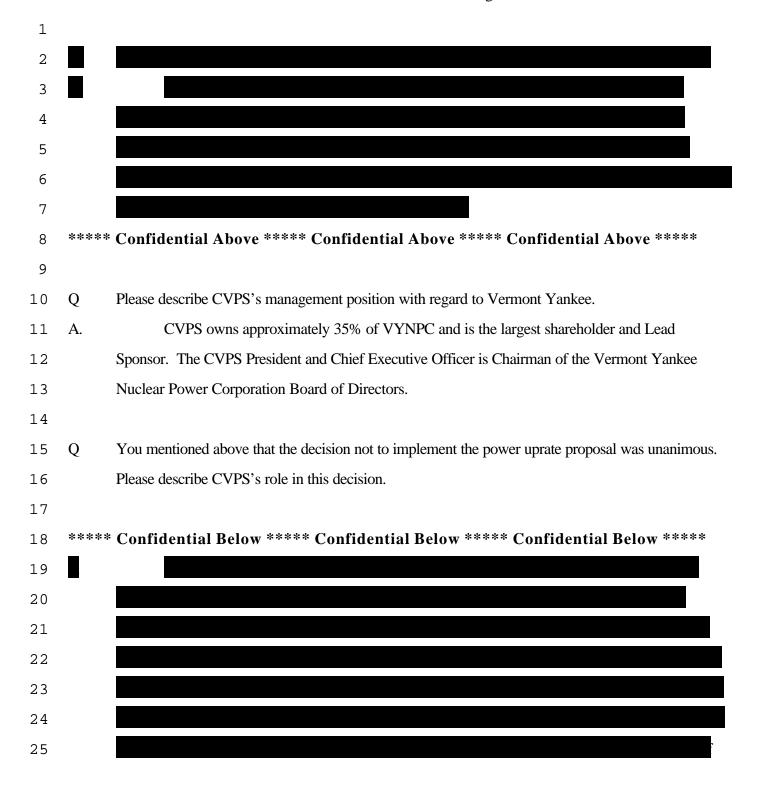
What has to be done to achieve power uprate? Are hardware modifications necessary?

Since BWR's were designed for power levels greater than the licensed power level, only minor hardware modifications are necessary. At Vermont Yankee, these modifications would have consisted of adjusting setpoints, recalibrating instruments, and modifying nozzles on the high pressure turbine to accommodate higher steam flow. Plant procedures and safety analyses would have required

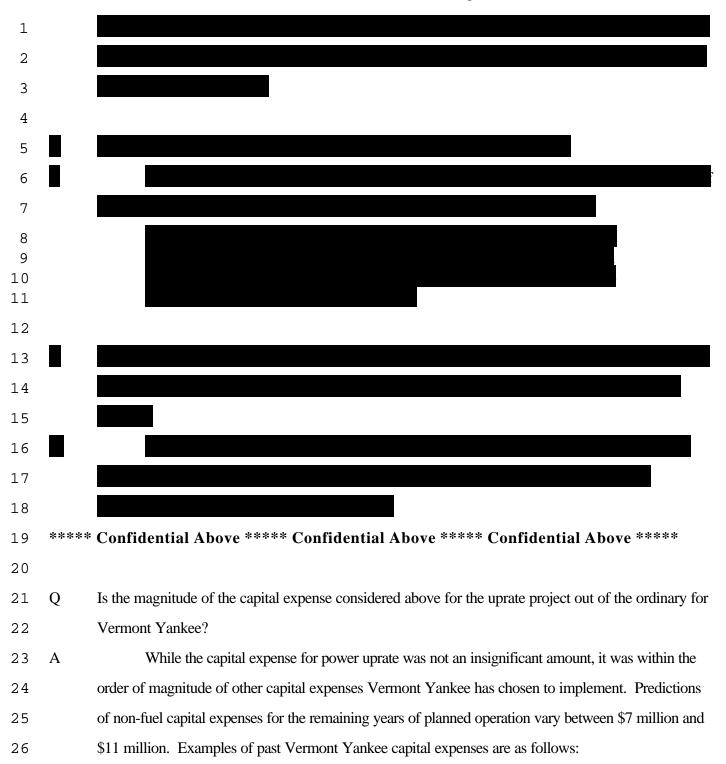
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1		revision in accordance with the GE generic topical report. As a result of low-level of work and
2		previously approved topical report, GE has been able to offer power uprate services at a fixed price
3		and for a set schedule.
4		
5	Q	What is your assessment of the safety implications of power uprate for Vermont Yankee?
6	A	Based on the uprates granted at similar plants, I do not believe there are safety implications of
7		power uprate at Vermont Yankee.
8		
9	Q	Do you believe Vermont Yankee could have complete the uprate project within budget and on
10		schedule?
11	A	Yes. Because of the previous approvals of power uprate and the generic approval of the GE
12		generic topical report, I would characterize the update as routine.
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14	****	* Confidential Below ***** Confidential Below ***** Confidential Below *****
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Examples of Vermont Yankee Capital Expenses

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4	Identification	<u>Perio</u>	Expense
		<u>d</u>	
5	LP Turbine Replacement	93-94	Greater than \$15 million
6	Design Basis Documents	97-00	Greater than \$14 million
7	Torus Strainer Modification	97-98	Greater than \$10 million
8	Noble Metals Chem Control	99-01	Approximately \$7 million
9	Feedwater Heater Replacement	96	Approximately \$7 million
10	Core Shroud Modification	96	Approximately \$6 million
11	Spent Fuel Storage Increase	97-99	Approximately \$4 million

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- What are the reasons given by CVPS for not implementing power uprate?
- 14 A In discovery, it was stated that reasons for not implementing power uprate were:
 - Out of state owners needs with regard to restructuring
 - Extra power was not needed
 - Potential VY buyer is not willing to compensate for power uprate
 - Unwillingness to invest before the sale

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- Q. What are your comments regarding the *out of state owners needs with regard to restructuring* as a reason for not choosing power uprate?
- 22 A. While there may be issues associated with out of state owners and restructuring, CVPS
 23 makes it clear in the March 3, 1999 letter (Exhibit WKS-4) that the lead Sponsor assumes the
 24 burden of guiding major decisions with respect to its Yankee company. Id, at 2. The facts appear

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clear that, at the January 13, 1999 "straw vote," the out of state owners were willing to pursue power uprate, and that it was CVPS in the January 15, 1999 meeting which singularly held a more emphatic position against power uprate which resulted in a different outcome. Id, at 3. Even if CVPS was considering out-of-state interests in the "more emphatic position of the Lead Sponsor," it was doing so to its own detriment and to the detriment of Vermont ratepayers. Therefore, the reason, *out of state owners needs with regard to restructuring*, should be given no weight when considering the reasonableness of the VY Board decision.

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What are your comments regarding the claim that *extra power was not needed* was a reason for not choosing power uprate?

The extra power that would have been available from power uprate is much less expensive than market power. A reasonable manager would at least have chosen to receive this low cost power and to resell it at the higher predicted market prices for a profit for shareholders or ratepayers. Therefore, the reason, *extra power was not needed*, should be given no weight when considering the reasonableness of the VY Board decision.

What are your comments regarding the claim that the *potential VY buyer is not willing to compensate for power uprate* was a reason for not choosing power uprate?

In January 1999, VYNPC was negotiating with AmerGen for the potential sale of the plant. While AmerGen may have portrayed an unwillingness to compensate for power uprate in its purchase proposal, this portrayal should have been taken as simply a part of AmerGen's negotiating strategy. It is unreasonable to believe that AmerGen or another buyer would not have ultimately considered the aspects of power uprate in purchase proposals. If VYNPC had already accomplished power uprate for a set amount of money, this represents an amount of money a buyer would not have to spend for power uprate, and the buyer would be able ultimately to reflect this value in its purchase offer. This would have been true in the final proposal negotiated with

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AmerGen in Docket No. 6300. A reasonable manager would have recognized that the potential buyer's unwillingness to compensate for power uprate was unreasonable, and the potential buyer's (AmerGen's) overall proposal was insufficient value. A reasonable manager would have recognized 1) that AmerGen's portrayal was part of negotiating strategy, 2) that a proposed sale carried an uncertainty regarding whether it would be concluded, and 3) it would have been better to implement the power uprate proposal being considered by the VY Board, which would have increased the overall value of the plant. Therefore, this reason should be given no weight when considering the reasonableness of the VY Board's decision. What are your comments regarding the claim that there was an *unwilling to invest before the sale*, and that this was a reason for not choosing power uprate? The unwillingness to invest in a beneficial project in the face of a potential sale represents a failure to adequately assess the possibility that a proposed sale might not be approved by regulators. A reasonable assessment of risks would have concluded that corporate and ratepayer interests would be have been better protected by implementing the power uprate proposal. Therefore, the desire not to make investments in the face of an uncertain future is not a valid reason not to have chosen power uprate. What is your overall opinion regarding the power uprate proposal? The power uprate proposal should have been implemented. From a technical point of view, the uprate proposal was highly desirable because of the previous uprates on similar plants. There was

little to no technical risk associated with the proposal. From an economic point of view, the

uprate proposal was clearly beneficial. The fixed priced contract provided protection against cost

overruns. The cost of the added power would have been much lower than market costs of power.

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VERMONT YANKEE POWER COST ADJUSTMENTS

4 Q. Please state the basis upon which you describe Vermont Yankee projections.

5 A. The convention I use for considering Vermont Yankee costs is to speak about Vermont

Yankee's total costs, rather than CVPS share of Vermont Yankee costs. After making

adjustments on a "100% basis," I then apply the CVPS ownership percentage of 31.141% to

arrive at CVPS's share.

Vermont Yankee costs for this case are identified in the Operating Expense Projection. I use the Operating Expense Projection as a basis and make adjustments based on these projections. To my knowledge, the Operating Expense Projection has not been supported by testimony of a Vermont Yankee witness. Also, this case calls for an update to the Operating Expense Projection later in the case. Therefore, I reserve the right to offer additional adjustments as Vermont Yankee's projection becomes clearer.

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Texas Compact Fee Amortization and Texas Compact Interest Expense

- Q. Please describe your adjustments for Texas Compact Fee Amortization and for Texas Compact
 Interest Expense.
- 19 A. Texas Compact Fee Amortization is projected by Vermont Yankee to be \$2,456,000 for the adjusted test year. Texas Compact Interest Expense is projected to be \$852,500 for the adjusted test year. I eliminate the entire amount of each of these categories because the expenses are speculative and do not have a high probability of taking place.

- 24 Q. What is the Texas Compact?
- 25 A. The term, Texas Compact, refers to the Texas-Maine-Vermont Low-Level Radioactive

 Waste Disposal Compact. This compact agreement has been ratified by Congress and is included

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1		in Vermont Statute at 10 V.S.A. §7069. The Texas Compact establishes that a \$27.5 million fee
2		will be paid by Vermont to Texas in two installments. This fee in turn is collected from Vermont
3		radioactive waste generators, principally Vermont Yankee, in accordance with 10 V.S.A. §7067.
4		
5	Q.	What is the Texas Compact Fee Amortization?
6	A.	The Texas Compact Fee Amortization is Vermont Yankee's estimate of the expenses for
7		amortization of the \$27.5 million anticipated payment required by the Texas Compact.
8		
9	Q.	What is the Texas Compact Interest Expense?
10	A.	The Texas Compact Interest Expense is the interest on debt incurred to pay the Texas
11		Compact Fee.
12		
13	Q.	You mentioned these costs are speculative and do not have a high probability of taking place.
14		Could you please expand on this and its implication for Vermont Yankee's projection?
15	A.	Yes. The Texas Natural Resources Conservation Commission (TNRCC), the licensing
16		body for the state of Texas, rejected the proposed disposal site in Hudspeth County on October
17		22, 1998. Hudspeth County is designated in Texas legislation as the site for the compact facility.
18		Following the rejection of the Hudspeth County site in 1998, the Texas Administration has not
19		pursued disposal in Hudspeth County. Although the disposal site issue was debated in the 1999
20		Texas legislative session, the law was not changed. Therefore, no disposal progress was made in
21		1999 and 2000 (the Texas legislature meets every other year). This issue is again before the 2001
22		Texas legislature, but there is no assurance of action.
23		The Texas Compact includes alternate payment methods in Section 5.02 of the Compact.
24		Vermont is proceeding under the assumption that these alternate payment provisions are in effect
25		and that Texas will not request fees from Maine and Vermont until construction of the disposal
26		facility begins. Before construction can begin, the legislature must change the Hudspeth County

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1		designation, and a new site must be chosen and licensed. It is unlikely these activities will take
2		place before the end of the adjusted test year. Therefore, I consider these costs to be speculative.
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5	Q.	Please summarize your adjustment for the Texas Compact Fee Amortization and Texas Compact
6		Interest Expense.
7	A.	As discussed, the entire amount of each is eliminated. The adjusted test year expense is
8		reduced by \$2,456,000 for Texas Compact Fee Amortization and \$852,500 for Texas Compact
9		Interest Expense.
10		
11	Deco	mmissioning Expenses
12	Q.	Please describe your adjustments for Decommissioning Expenses.
13	A.	In the Operating Expense Projection, Vermont Yankee projects a Decommissioning
14		Expense of \$17,090,000 for the adjusted test year. This collection rate is based on Vermont
15		Yankee's April 1999 decommissioning estimate. Vermont Yankee assumes this rate will be set by
16		the Federal Energy Regulatory Commission (FERC) in a rate proceeding which it will file. For the
17		reasons stated below, I conclude this rate should be \$10,879,000. I reduce Vermont Yankee's
18		projection by the difference, \$6,211,000.
19		
20	Q.	Do you agree that the Decommissioning Expense for this case should be projected based on a
21		future FERC case?
22	A.	Yes. Vermont Yankee has made this the basis of their projection. I agree for the following
23		reason. It has been the practice for Vermont Yankee to true-up its decommission collection rate
24		at the FERC approximately every 5 years. Vermont Yankee was scheduled to file a true-up case
25		in April 1999 with rates to take effect in January 2000. However, this true-up case was set aside
26		for the proposed sale with AmerGen. Now that the proposed sale with AmerGen is over, DPS

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1		will work to have the decommissioning true-up case filed expeditiously. Also, there is a possibility
2		a new Vermont Yankee decommissioning collection amount will be established in the resolution of
3		remaining issues in the open FERC docket with regard to the AmerGen transaction.
4		
5	Q.	Have you considered the collection rate which should be established based on Vermont Yankee's
6		April 1999 decommissioning estimate?
7	A.	Yes. I testified extensively on the April 1999 decommissioning estimate in Docket No. 6300. In
8		that estimate, Vermont Yankee projected it could complete decommissioning for \$499.7 million (in
9		1999 dollars). For my evaluation, I used a lower decommission estimate and concluded that the
10		collection rate for the period including the adjusted test year should be \$10,879,000.
11		
12	Q.	You mentioned earlier that you used a lower decommissioning estimate than VYNPC. Please
13		describe the decommissioning estimate you used.
14	A.	I used a decommissioning estimate of \$412 million, expressed in 1999 dollars. I believe
15		that, if VYNPC continued to operate the plant until the end of its operating license, it could
16		accomplish decommissioning for \$412 million. To arrive at this amount, I adjusted the VYNPC
17		estimate of \$499 million in the following areas: spent fuel management, site restoration, and low
18		level radioactive waste burial.
19		
20	Q.	Please describe your adjustment for spent fuel management.
21	A.	VYNPC included costs in its estimate for operations and maintenance of a dry cask facility
22		for spent nuclear fuel until 2031. VYNPC also includes costs for the purchase of dry cask and
23		overpacks. VYNPC assumes the federal government will begin to remove spent fuel from the site
24		in 2010 and complete removing fuel in 2031.

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The federal government has failed to perform a contractual obligation with Vermont Yankee to begin removing spent fuel from nuclear sites in 1998, and is liable for damages. Ratepayers have paid for spent fuel disposal through a one mill charge established by this contract for each kilowatt-hour of Vermont Yankee power produced. Ratepayers should not be liable for paying again for spent fuel disposal, and my expectation is that VYNPC will succeed in receiving fair damages. Therefore, I adjust VYNPC's estimate to assume the federal government began removing fuel in 1999, and I remove from VYNPC's estimate the amounts for casks and overpacks which are required because spent fuel disposal is not available.

Q.

A.

Please describe your adjustment for site restoration.

VYNPC includes costs in its estimate to restore the Vermont Yankee site to its original condition ("greenfielding") following removal of radioactive material to NRC site release standards. In the 1999 DPS *Vermont Yankee Economic Study*, we recommended that the General Assembly could identify its intent regarding whether ratepayers should pay costs to return the site to original conditions. To date the General Assembly has not given an indication and absent that, I follow the methodology in the 1999 DPS *Vermont Yankee Economic Study* by not including greenfielding expenses as ratepayer costs. Therefore I removed site restoration costs which were not otherwise required for buildings assumed to be damaged by the removal of radioactivity.

Q.

- Please describe your adjustment for low level waste burial.
- A. VYNPC assumed all low-level radioactive waste except contaminated soil would be buried at the Texas Compact disposal site. Contaminated soil was assume to be buried at the

¹ The first fuel was scheduled to leave Vermont Yankee in 1999.

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1 Envirocare of Utah site. The Texas Compact site is expected to have higher disposal rates than 2 the Envirocare site. 3 Recent experience has found that Envirocare can accept Class A decommissioning 4 wastes. Therefore, I reduced VYNPC's estimate to assume Class A low-level radioactive wastes 5 from decommissioning were buried at Envirocare instead of the Texas Compact facility. 6 7 8 Q. What assumptions did you use for the earnings of the decommissioning fund? 9 A. For earnings in the fund, I used the after-tax value of the fund at the end of 1999 of \$238 10 million. For other assumptions, I accepted VYNPC's values used for its evaluation in Docket No. 11 6300. Specifically, I used a decommissioning cost escalation rate of 3.8% and pre-tax, pre-fee 12 fund earnings rates for municipal bonds, equities and bonds as 5%, 10% and 6%, respectively. In 13 the settlement with Vermont Yankee for FERC Docket No. ER94-1370-000, VYNPC was 14 allowed to invest the decommissioning fund in 30% common equities. Subsequent to this 15 settlement, the FERC approved a general method of investment of decommissioning funds in 16 equities in 18 C.F.R. §35.32(a)(3), called the "prudent investor standard." Based on this 17 standard, I chose a value of 50% as a reasonable assumption for investment in equities for 18 VYNPC going forward. Based on these assumptions, and a \$412 million decommissioning cost, 19 I calculated a collection rate of \$10,879,000 for the years, 2000 to 2004. 20 21 Q. What is your opinion regarding whether the FERC would accept the adjustments you have 22 proposed? 23 A. There is a high likelihood the FERC will accept the adjustments identified above. 24 Although not an attorney, I understand that the site restoration adjustment aligns with FERC

precedence - the FERC does not accept site restoration expenses unless site restoration is

required by state or local law. The adjustment for spent fuel management - the use of the spent

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1 fuel trust for expenses expected to be recovered in damages from DOE - is the same adjustment 2 that I participated in negotiating for ratepayers' benefit in the FERC decommissioning cases for the 3 Maine Yankee and Connecticut Yankee plants, and which the FERC accepted. The adjustment 4 for low level waste burial is likely to be accepted since it represents an available, lower cost 5 alternative than the disposal site assumed by Vermont Yankee. 6 In addition, the FERC true-up case will include other parties with a strong interest for 7 lowering the decommissioning estimate. These parties will exert downward pressure on the 8 decommissioning estimate such that it is highly unlikely the FERC case would conclude with 9 Vermont Yankee's estimate of \$17 million per year. 10 11 Q. Please summarize your adjustment for the Decommissioning Expenses. 12 A. I replace Vermont Yankee's adjusted test year projection for decommissioning expenses 13 of \$17,090,000 with \$10,879,000. The adjusted test year expense is reduced by \$6,211,000. 14 15 **Future Sale Transaction Expenses** 16 Q. Please describe your adjustments for Future Sale Transaction Expenses. 17 A. In the Operating Expense Projection, Vermont Yankee includes an amount of \$33,639,000 for operating projects in 2001. In discovery, Vermont Yankee identified this amount 18 19 included an operating project called Project Maple for \$3,000,000. Project Maple is Vermont 20 Yankee's designation of transaction costs for the possible future sale of the plant. The amount for 21 the adjusted test year is half the total, \$1,500,000. I eliminate this entire amount because the 22 expense is speculative and does not have a high probability of taking place. 23 24 Q. If a new sale were pursued, how should transaction costs be treated?

Vermont Yankee should not pass through as expenses included in its formula rate any

transaction costs associated with any future efforts to sell the plant, including without limitation any

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A.

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1		costs of conducting an auction. Vermont Yankee should separately account for all categories of
2		transaction costs and may file to the FERC for approval of the proposed total amount to be
3		collected if and when a new plant sale transaction is consummated.
4		
5	Q.	Why are the transaction costs for a future sale speculative?
6	A.	The proposed transaction with AmerGen, Docket No. 6300, was denied. Vermont
7		Yankee has not yet decided even whether it will pursue another sale. Even if a new sale is
8		proposed, there is no assurance that it will be approved within the adjusted test year, if at all. In
9		this event, the costs would not occur in the adjusted test year.
10		
11	Q.	Please summarize your adjustment for the Future Sale Transaction Expenses.
12	A.	As discussed, the entire amount of each is eliminated. The adjusted test year expense is
13		reduced by \$1,500,000.
14		
15	Q.	Does this conclude your testimony?
16	A.	For the time being, yes. Vermont Yankee has not supported its projections with testimony
17		and plans to update its projections later in the case. The right is reserved to supplement this
18		testimony as Vermont Yankee's projections become clearer.
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